

REMARKS/ARGUMENTS

Claims 1-4, 7-11, and 13-56 are pending in the application. Claims 1-3, 7-10, and 19-21 are amended herein. The Applicant hereby requests further examination and reconsideration of the application in view of the foregoing amendments and these remarks.

Claim Amendments

Claims 1, 3, 7-8, 10, and 19-21 are amended to ensure proper antecedent basis. In particular, claims 1, 3, 10, and 19-21 are amended to replace the phrase "the output command" or "the outputted command" with "the command" to conform with the antecedent recitations of "a command." Similarly, claims 1 and 8 are amended to recite "an accuracy" instead of "the accuracy", while claim 7 is amended to recite "the accuracy" instead of "an accuracy" to provide proper antecedent basis between those recitations. None of these amendments have been made to overcome any prior-art rejections.

Prior-Art Rejections

In paragraph 3 of the office action, the Examiner rejected claims 1-4 and 7 under 35 U.S.C. 103(a) as being unpatentable over Rho in view of Basseas. In paragraph 4, the Examiner rejected claims 19-20 under 103(a) as being unpatentable over Rho in view of Basseas. In paragraph 5, the Examiner rejected claims 8-11, 13-17, and 21-22 under 103(a) as being unpatentable over Rho in view of Basseas. In paragraph 6, the Examiner rejected claims 23-27 and 44-48 under 103(a) as being unpatentable over Rho in view of Basseas. In paragraph 7, the Examiner rejected claim 36 under 103(a) as being unpatentable over Crouch in view of Rho in further view of Basseas. In paragraph 8, the Examiner rejected claims 40 and (presumably) 43 under 103(a) as being unpatentable over Rho in view of Basseas. In paragraph 9, the Examiner objected to claims 18, 28-35, 37-39, 41-42, and 49-56 as being dependent upon a rejected base claim, but indicated that those claims would be allowable if rewritten in independent form. For the following reasons, the Applicant submits that all of the now-pending claims are allowable over the cited references.

Claims 1-4, 7-11, and 13-56

In general, the invention is directed to techniques for adjusting operations of a hearing aid using a telephone and a computer system having one or more computers. Depending on the particular implementation, commands are sent from the computer system to a processor located in either the telephone or the hearing aid, where the processor causes test tones to be generated either by the telephone or by the hearing aid. Upon hearing the test tones, the user provides responses, e.g., using the telephone key pad or a computer keyboard, and the computer system processes the user's responses to determine adjustments for the hearing aid that are transmitted from the computer system to the hearing aid, either directly or via the telephone.

Such an invention enables users to have their hearing aids adjusted remotely, e.g., without having to go in person to a doctor's office.

The Examiner rejected each of the pending independent claims under 103(a) based on either a combination of teachings in Rho and Basseas or a combination of teachings in Crouch, Rho, and Basseas. In order for those rejections to be proper, the cited references must collectively teach each and every one of the features recited in those claims and there must be motivation in the prior art for combining the teachings of those references. The Applicant submits that there is no motivation in the prior art for

combining the cited references to reject the independent claims in the present application. As such, the Applicant submits that those rejections are improper.

Rho teaches techniques for testing hearing using a telephone and a computer system. As admitted by the Examiner, Rho has nothing to do with hearing aids, let alone with adjusting the operations of hearing aids. Significantly, Rho explicitly teaches that the disclosed hearing tests are specifically designed to be implemented using conventional telephones. See, e.g., Abstract and column 1, lines 56-60.

Basseas teaches techniques for adjusting the operations of hearing aids using a computer system. Significantly, Basseas does not teach or even suggest using a telephone either during the testing implemented to determine the adjustments or during the process of adjusting the hearing aid itself.

Crouch teaches a system for permitting hearing impaired persons to use conventional telephones. The system is referred to as a hearing aid telephone interconnect system. Significantly, however, the hearing aid taught in Crouch (i.e., T-coupler 38) is very different from the hearing aids of the present invention, which are standalone devices that can operate independently from telephones. In Crouch, the T-coupler cannot operate without a telephone. Moreover, the T-coupler is not a device whose operations can be adjusted as are the hearing aids of the present invention.

In determining whether it is proper to combine references to reject a claim in a patent application, the question is not whether the references teach all of the claimed features. The question is, even if the references do teach all of the claimed features, whether there is a suggestion in the prior art for combining the teachings in the first place. The Applicant submits that there is no suggestion in the prior art for combining the teachings of the three very different references to reject the claims of the present application.

In particular, there is no suggestion in the prior art to use the telephone-based hearing test taught in Rho to adjust the operations of a hearing aid. Similarly, there is no suggestion in the prior art to use a telephone in the techniques taught in Basseas to adjust the operations of a hearing aid.

In arguing that combining the teachings of Rho and Basseas is proper, the Examiner stated, for example, on page 4:

Rho teaches of remotely testing a person's hearing and Basseas teaches of using a computer it would have been a natural progression to at the same as the testing to adjust the hearing aid of the user. ... Thus it would have been obvious to one of ordinary skill in the art to combine Rho's testing method with Basseas testing and device and method for the benefit of performing more precisely adapting a hearing aid to an individual.

First of all, such an argument is based on hindsight, which is an improper basis for combining the teachings of different references. Moreover, the argument is not even true. There is no teaching or even suggestion that the present invention "more precisely adapt[s] a hearing aid to an individual." If anything, the present invention may sacrifice the "preciseness" that would result from the test being administered in a doctor's office for the convenience of enabling users to adjust the operations of their hearing aids remotely. Thus, the Examiner provides an incorrect reason for supporting the conclusion that the combination of references is proper.

To summarize, the Applicant submits that there is no suggestion in the prior art for combining the teachings of Rho, Basseas, and Crouch. As such, the rejections of claims based on those combinations are not proper.

Not only is the combination of references not proper, but the fact is that, as argued in the following sections, the references do not even teach all of the features recited in each of the independent claims.

Claim 1, 19, and 20

According to each of independent claims 1, 19, and 20, a command is generated via a first computer at a first location, and the command is transmitted to a second computer at a second location over a remote data link, where the command is sent from the second computer to a digital signal processor in one of a telephone and the hearing aid.

In rejecting each of claims 1, 19, and 20, the Examiner stated, e.g., on page 3, that "the telephone itself reads on a second computer and there is obviously a digital signal processor internal to the phone." The Applicant respectfully submits that the Examiner mischaracterized the claimed invention or the teachings in Rho or both.

Rho explicitly teaches the use of a conventional telephone to perform the disclosed hearing tests. See, e.g., "conventional telephone line" in the Abstract. On column 1, lines 56-58, Rho explicitly teaches that, "according to the present invention, it is not necessary to buy the special equipment for the self-test. According to the present invention, it is possible for the patient to test his hearing ability any time and at any place." All of this supports the conclusion that Rho teaches the use of conventional telephones and teaches away from the use of any specially designed telephones for Rho's invention.

Notwithstanding the Examiner statement otherwise, a conventional telephone is not a computer, and a conventional telephone does not have a digital signal processor that is designed to process commands from a computer to support hearing tests.

Thus, the telephone taught in Rho is not an example of the second computer recited in claims 1, 19, and 20.

Furthermore, such a conclusion would lead to a logical inconsistency within the claim itself. If the second computer were a telephone, then the claims would cover a command being sent from the telephone to a digital signal processor in the telephone. This does not make sense, which provides additional reason for the unreasonableness and impropriety of the Examiner's conclusion that the telephone taught in Rho is an example of the second computer recited in claims 1, 19, and 20.

In view of the foregoing, the Applicant submits that claims 1, 19, and 20 are allowable over the cited references. Since claims 2-4 and 7 depend variously from claim 1, the Applicant submits that those claims are also allowable over the cited references.

Claims 8, 21, and 22

According to claims 8, 21, and 22, a command is generated via a computer and sent to a digital signal processor in one of a telephone and the hearing aid. A test tone is output from the digital signal processor based on the command to the user of the telephone wearing the hearing aid. A response to the test tone by the user is received and stored in the computer.

In rejecting claims 8, 21, and 22, the Examiner stated, for example, on page 7:

The method taught in Rho reads on "generating a command via a first computer", "receiving a user response to the test tone over the remote data link", and "sending the command from the second computer to a digital signal processor in one of a telephone or hearing aid" because the telephone itself reads on a second computer and there is obviously a digital signal processor internal to the phone.

First of all, the passages quoted by the Examiner do not even exist in any of claims 8, 21, and 22. Moreover, as described in the previous section, the conventional telephone taught in Rho is not a computer; nor does Rho's conventional telephone have a digital signal processor.

In view of the foregoing, the Applicant submits that claims 8, 21, and 22 are allowable over the cited references. Since claims 9-11 and 13-18 depend variously from claim 8, the Applicant submits that those claims are also allowable over the cited references.

Claims 23 and 44

According to claims 23 and 44, a processor is in either the telephone or the hearing aid, where the processor receives a sequence of one or more non-audible commands and causes an audible test tone to be generated in response to receipt of each command. In rejecting claims 23 and 44, the Examiner stated, on page 11, that Rho teaches an example of the processor of claims 23 and 44.

As explained previously, however, Rho's conventional telephone does not have a processor, let alone a processor that can perform the functions recited in claims 23 and 44.

As such, the Applicant submits that claims 23 and 44 are allowable over the cited references. Since claims 24-35 and 45-56 depend variously from claims 23 and 44, it is further submitted that those claims are also allowable over the cited references.

Claims 36 and 40

According to claims 36 and 40, the hearing aid comprises a processor that is adapted to receive a sequence of one or more non-audible commands from a computer system and cause an audible test tone to be generated by the hearing aid in response to receipt of each command. In rejecting claim 36, the Examiner cited a combination of teachings in Crouch, Rho, and Basseas, while the Examiner rejected claim 40 based on a combination of teachings in Rho and Basseas. In either case, the Applicant submits that the cited references do not teach the claimed invention. In particular, none of the cited references teaches a hearing aid having a processor that receives non-audible commands and causes audible test tones to be generated by the hearing aid in response to those non-audible commands.

In rejecting claim 36, the Examiner stated that Crouch's hearing aid receives a sequence of one or more non-audible commands from a computer system. Crouch explicitly teaches that the disclosed hearing aid telephone interconnect system is purposely designed to work with "conventional telephone instruments." See, e.g., Abstract. Conventional telephone instruments are not computer systems and, more importantly, the signals transmitted from them to Crouch's hearing aid cannot properly be characterized as "non-audible commands from a computer system." Nor is there any teaching in Crouch that the hearing aid has a processor that causes audible test tones to be generated in response to receipt of each command. Figs. 2 and 3, which provide details of Crouch's hearing aid, show no indication whatsoever of such a processor.

Similarly, in rejecting claim 40, the Examiner relied on the teachings of Rho and Basseas, none of which teach a hearing aid having a processor capable of performing the recited functions.

As such, the Applicant submits that claims 36 and 40 are allowable over the cited references. Since claims 37-39 and 41-43 depend variously from claims 36 and 40, it is further submitted that those claims are also allowable over the cited references.

Claims 2, 9, 27, and 48

According to currently amended claims 2 and 9, the command is sent from a computer to the digital signal processor as a DTMF tone. According to claims 27 and 48, the computer system transmits the commands to the processor in the telephone using DTMF signaling.

In rejecting claims 2, 9, 27, and 48, the Examiner stated, for example, on pages 4-5 that DTMF:

is used for telephone signaling over the line in the voice frequency band to the call-switching center. Today DTMF is used for most call setup to the telephone exchange, at least in the Western world. Touch-tone is common with conventional and cellular phones.

The Examiner's characterization of DTMF may be true, but that does not make the inventions of claims 2, 9, 27, and 48 obvious. As characterized by the Examiner, conventional DTMF signaling is from a telephone to another set of equipment, such as the call-switching center of a telephone exchange. In the inventions of claims 2, 9, 27, and 48, however, the DTMF signaling is to a telephone from another set of equipment (i.e., a computer). Conventional telephones, such as the telephones taught in Rho, are designed to transmit DTMF signals, but they are not designed to receive and process DTMF signals.

In the inventions of claims 2, 9, 27, and 48, the processor (which is located either in a telephone or in a hearing aid) receives and processes DTMF- based commands in order to generate audible test tones to be output to the user of a hearing aid. The cited references simply do not teach or even suggest such a combination of features.

The Applicant submits therefore that this provides additional reasons for the allowability of claims 2, 9, 27, and 48 over the cited references.

Claims 3, 10, 19, 21, 26, and 47

According to claims 3, 10, 19, and 21, a response to the command is input into a computer via a keyboard attached to the computer. According to claim 26, the user enters each response via a keyboard attached to the computer system. According to claim 47, the computer system is adapted to receive each response from the user via a keyboard attached to the computer system.

In rejecting these claims, the Examiner stated, for example, on page 5, that the telephone keypad taught by Rho "reads on 'keyboard'" and that Rho's telephone "itself is the second computer." As described previously, the conventional telephone taught by Rho is not a computer. It follows therefore that Rho's telephone keypad is not a computer keyboard.

The Applicant submits that this provides additional reasons for the allowability of claims 3, 10, 19, 21, 26, and 47 over the cited references.

Claim 16

According to claim 16, the response is stored in the second computer. In rejecting claim 16, the Examiner stated, on page 10, that "In Rho's and Basseas combined system, there is obviously a response stored in the phone." This argument is improper for a number of reasons.

First of all, the argument appears to be based on the incorrect assumption that the conventional telephone taught in Rho is a computer. As described previously, Rho's conventional telephone is not a computer.

Secondly, there is no teaching in Rho that the disclosed conventional telephone "stores" any responses. Notwithstanding the Examiner's statement otherwise, conventional telephones such as those taught in Rho do not store data.

The Applicant submits that this provides additional reasons for the allowability of claim 16 over the cited references.

Claim 17

According to claim 17, the user's response is stored in the first and second computers. In rejecting claim 17, the Examiner stated, on page 10, that Basseas teaches that "the computer and the hearing aid store data." Here, it appears that the Examiner is arguing that the hearing aid taught by Basseas is an example of one of the two computers recited in claim 17. This argument is improper for a number of reasons.

First of all, just because the hearing aid taught by Basseas stores "data," that does not mean that Basseas's hearing aid stores "user responses." In fact, there is no teaching in Basseas that the disclosed hearing aid stores any of the user responses.

Secondly, the Examiner's characterization leads to a logical inconsistency within the recitations of claim 17. In particular, if Basseas's hearing aid were an example of the second computer of claim 17, then, according to claim 14 from which claim 17 depends, the command would be generated by a first computer at a first location and received by the hearing aid at a second location, where the hearing aid sends the command to the digital processor, which, according to claim 8 from which claim 14 depends, is in either a telephone or in the hearing aid.

If the digital processor were in the telephone, then the hearing aid would be sending the command to the digital processor in the telephone. There is simply no teaching or suggestion for such a system in the prior art. On the other hand, if the digital processor were in the hearing aid, then the hearing aid would be sending the command to the digital processor in the hearing aid, which does not make any sense. Either way, the Examiner's characterization is unreasonable and improper.

The Applicant submits that this provides additional reasons for the allowability of claim 17 over the cited references.

In view of the above amendments and remarks, the Applicant believes that the now-pending claims are in condition for allowance. Therefore, the Applicant believes that the entire application is now in condition for allowance, and early and favorable action is respectfully solicited.

Respectfully submitted,

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